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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/583,569	Applicant(s) CHEN ET AL.	
	Examiner KHALID ABDALLA	Art Unit 4173	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06/19/2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *03/16/2007 and 06/19/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This application has been examined .Claims 1-4 and 6-21 are pending in this application

Information Disclosure Statement

2. The Examiner has considered the references listed on the Information Disclosure statement submitted on 03/19/2006 (see attached PTO-1449).

Drawings

3. The examiner contends that the drawings submitted on 03/19/2006 are acceptable for examination proceedings

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1- 4 and 6- 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berg (US 20020112085 A1) in view of Ferrari et al (US 20040078419 A1) hereinafter referred to as Berg and Ferrari respectively.

Regarding claim 1, Berg discloses a method for selecting egresses of a multi-ISP (multiple ISP see FIG.2b and FIG.2c) local area network, the local area network comprising, a routing switch, which comprises an egress user board for processing of the ISP egresses (the n servers is connected to a flow switch at egress [0059] and FIG.1b) , the method comprising the steps of: providing a network address translation (NAT) board for NAT .in the routing switch (Page 17, [0213], NAT and lookup table for routing information content); presetting a NAT address pool corresponding to each of the ISP egresses querying in a routing table upon request of an outgoing packet from the local area network (see Page 4, Paragraph [0061], NAT utilizing flow switch (i.e., address pool, see also [0093]) in mapping and routing outgoing packet via a suitable egress).

Berg does not discloses and determining the next hop of the route for the packet; and determining whether it is necessary to perform NAT at the ISP egress corresponding to the next hop of the route; and if yes, selecting one of the NAT address pools corresponding to the ISP egress, performing corresponding NAT by the NAT board, and forwarding the packet to the egress user board corresponding to the ISP; otherwise, forwarding the packet to the egress user board corresponding to the ISP.

However Ferrari teaches the determining of the next hop of the route for the packet; and determining whether it is necessary to perform NAT at the ISP egress corresponding to the next hop of the route (flow entry and next-hop address to destination NAT IP address [0515]); and if yes, selecting one of the NAT address pools corresponding to the ISP egress, performing corresponding NAT by the NAT board, and forwarding the packet to the egress user board corresponding to the ISP; otherwise, forwarding the packet to the egress user board

corresponding to the ISP(every request is load balanced SEE [0245]and ,also see The load-balancing function will select a physical server to send the packet to. NAT results in the destination IP address see [0432]).

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to take the teachings of Ferrari related to multi domain NAT and have modified the teachings of Berg directed to a single domain NAT process with a motivation to facilitate the information routing.

Regarding claim 2, note that Berg discloses The method for selecting egresses of a multi-ISP (multiple ISP see FIG.2b and FIG.2c) local area network according to claim 1, wherein the step of presetting a NAT address pool corresponding to each of the ISP egresses comprises the steps of:

binding each of outgoing interfaces connected with the ISP with a corresponding one of the NAT address pools (selected server through a suitable one of the flow switch's egress ports see [0061]).

Also note that Ferrari teaches creating a NAT policy tree (categorize the frame and send it to the next hop in the tree see [0212]) in accordance with combination of the outgoing interface and the source IP address as a keyword upon request for access (the PIRUS system would use NAT and policies to route the request to the correct NAS server see [0178]), wherein leaf nodes of the NAT policy tree store binding relation between each of the outgoing interfaces connected with fine ISP and the corresponding NAT address pool (NAT, is performed on packets sent to or from a virtual IP address see [0432] and FIG.29)and the NAT policy information of the slot number of

the NAT board (IP address and IP source Port number are the only connection lookup keys see[0236]).

Regarding claim 3, note that Berg discloses The method for selecting egresses of a multi-ISP(multiple ISP see FIG.2b and FIG.2c) local area network according to claim 2, wherein the step of determining whether it is necessary to perform NAT (the protocol stack thread avoids the need to perform network address translations SEE [0180]).comprises the steps of:

detecting whether there is a public network flag in The routing table item hit by the subscriber traffic (the client opens a TCP type of connection endpoint and attempts connection through an IP network to a web server through the web server's advertised IP address on the standard web service TCP port SEE [0051]).

if yes, determining whether one of the leaf nodes of the NAT policy tree is hit in accordance with the combination of the outgoing interface and the source IP address as a keyword (a client connects to a server farm application by obtaining and connecting to a server's IP address, instead of a flow switch's IP address SEE [0066]); and

if one of the leaf nodes of the NAT policy tree is hit, determining it is necessary to perform NAT; otherwise, determining it is unnecessary to perform NAT (the protocol stack thread avoids the need to perform network address translations SEE [0180]).

Regarding claim 4, note that Berg discloses The method for selecting egresses of a multi-ISP local area network (selected server through a suitable one of the flow switch's egress ports see [0061]). wherein the step of selecting one of the NAT address pools corresponding to the ISP

egress(The flow switch helps to balance client request loads see[0061]) comprises the steps of: performing matching in the leaf nodes of the policy tree in accordance with the combination of the outgoing interface and the source IP address as a keyword(a client connects to a server farm application by obtaining and connecting to a server's IP address, instead of a flow switch's IP address SEE [0066]); and obtaining the address pool and the slot number (IP address and IP source Port number are the only connection lookup keys see[0236]). of the NAT board from the matched leaf node of the policy tree.

Regarding claim 6, note that Berg discloses The method for selecting egresses of a multi-ISP local area network (selected server through a suitable one of the flow switch's egress ports see [0061]), further comprising the steps of:
classifying the routes of the local area network into a general route and a policy route, and setting a routing policy for the policy route, wherein the general route is a standby for the policy route (server 1 outputs response packets to clients through router A which is dedicated to server 1 for such purpose, and server 2 outputs response packets to clients through router C which is dedicated to server 2 for such purpose see[0076]and FIG.2c).
Also note that Ferrari teaches the step of querying in a routing table upon request of an outgoing packet from the local area network and determining a next hop of the route for the packet (flow entry AND next-hop address to destination NAT IP address [0515]) comprising the steps of: determining the policy route and/or the general route corresponding to the next hop (categorize the frame and send it to the next hop in the tree see [0212]); determining whether the ISP the policy route is available; and if available, replacing the destination address route with the policy

routing result; otherwise, utilizing the destination address route of the primary general route (based on policy and/or TOS bit a priority is assigned within the class. Classes are associated with a priority when compared to other classes see [0288]).

Regarding claim7, note that Berg modified by Ferrari teaches The method for selecting gresses of a multi-ISP local area network (Berg: multiple ISP see FIG.2b and FIG.2c). Also note that Ferrari teaches , wherein the step of determining whether the policy route is available comprises the steps of:
querying in the routing table in accordance with the next hop (Ferrari : categorize the frame and send it to the next hop in the tree see [0212]) of the policy route; and determining whether the next hop can hit the 32-bit mask mute (Ferrari : class priorities are assigned to packets based on the TOS bit setting and/or policy see [0288]) corresponding to a directly-connected host; and if yes, determining the policy route is available, otherwise, determining the policy route is unavailable (Berg : forwards each received packet to a server (whose IP address is specified in the packet) see [0076]).

Regarding claim 8, note that Berg modified by Ferrari teaches the method for selecting egresses of a multi-ISP local area network (Berg: multiple ISP see FIG.2b and FIG.2c), wherein the step of determining a next hop of the route (Ferrari: flow entry and next-hop address to destination NAT IP address [0515])for the packet comprises the step of:
determining whether the route corresponds to a plurality of next hops; and if yes, performing

traffic sharing by the plurality of corresponding ISPs (Berg: The flow switch helps to balance client request loads see[0061] also see[0162]).

Regarding claim 9, note that Berg modified by Ferrari teaches the method for selecting egresses of multi-ISP local area network (Berg: multiple ISP see FIG.2b and FIG.2c), wherein the muting switch comprises a routing module and a NAT module completely separated from each other (Ferrari : class priorities are assigned to packets based on the TOS bit setting and/or policy see [0288]), wherein

the routing module determines route egress for the subscriber traffic (Berg: the client opens a TCP type of connection endpoint and attempts connection through an IP network to a web server through the web server's advertised IP address on the standard web service TCP port SEE [0051]); and

the NAT module determines whether to perform NAT and which NAT address pool to be selected (Berg: the flow switch helps to balance client request loads see[0061]).

Regarding claim 10, note that Berg discloses the method for selecting egresses era multi-ISP local area network (multiple ISP see FIG.2b and FIG.2c), further comprising the steps of:

classifying the routes of local area network into a general route and a policy route, and setting a routing policy for the policy route, wherein the general route is a standby for the policy route (server 1 outputs response packets to clients through router A which is dedicated to server 1 for such purpose, and server 2 outputs response packets to clients through router C which is dedicated to server 2 for such purpose see[0076]and FIG.2c).;

also note that Ferrari teaches the step of querying in a routing table upon request of an outgoing packet from the local area network (flow entry AND next-hop address to destination NAT IP address [0515]) and determining a next hop of the route for the packet comprising the steps of: determining the policy route and/or the general route corresponding to the next hop (flow entry and next-hop address to destination NAT IP address [0515]); determining whether the ISP egress corresponding to the policy route is available; and it" available, replacing the destination address route with the policy routing result; otherwise, utilizing the destination address route of the primary general route (based on policy and/or TOS bit a priority is assigned within the class. Classes are associated with a priority when compared to other classes see [0288]).

Regarding claim 11, note that Berg modified by Ferrari teaches the method for selecting egresses of a multi-ISP local area network (Berg: multiple ISP see FIG.2b and FIG.2c), wherein the step of determining whether the policy route is available (Ferrari: based on policy and/or TOS bit a priority is assigned within the class. Classes are associated with a priority when compared to other classes see [0288]).

comprises the steps of:

querying in the routing table in accordance with the next hop of the policy route (Ferrari: flow entry and next-hop address to destination NAT IP address [0515]); and determining whether the next hop can hit the 32-bit mask route(Ferrari : class priorities are assigned to packets based on the TOS bit setting and/or policy see [0288]) corresponding to a directly-connected host; and if yes, determining the policy route is available, otherwise, determining the policy route is unavailable (Berg : forwards each received packet to a server (whose IP address is specified in

the packet) see [0076]).

Regarding claim 12, note that Berg modified by Ferrari teaches The method for selecting egresses of a multi-ISP local area network (Berg: multiple ISP see FIG.2b and FIG.2c) , wherein the step of determining a next hop of the route for the packet (Ferrari: flow entry and next-hop address to destination NAT IP address [0515]) comprises the step of:
determining whether the route corresponds to a plurality of next hops; and if yes, performing traffic sharing by the plurality of corresponding ISPs (Berg: The flow switch helps to balance client request loads see[0061] also see[0162]).

Regarding claim 13, note that Berg modified by Ferrari teaches the method for selecting egresses of a multi-ISP local area network (Berg: multiple ISP see FIG.2b and FIG.2c), whereto the routing switch comprises a routing module and a NAT module completely separated from each other (Ferrari : class priorities are assigned to packets based on the TOS bit setting and/or policy see [0288]), wherein
the routing module determines route egress for the subscriber traffic(Berg: the client opens a TCP type of connection endpoint and attempts connection through an IP network to a web server through the web server's advertised IP address on the standard web service TCP port SEE [0051]); and
the NAT module determines whether to perform NAT and which NAT address pool to be selected (Berg: the flow switch helps to balance client request loads see[0061]).

Regarding claim 14, note that Berg discloses the method for selecting egresses of a multi-ISP (multiple ISP see FIG.2b and FIG.2c), local area network according to claim 3, further comprising the steps of:

classifying the routes of the area network into a general route and a policy route,

and setting a routing policy for the policy route, wherein the general route is a standby for the policy route(server 1 outputs response packets to clients through router A which is dedicated to server 1 for such purpose, and server 2 outputs response packets to clients through router C which is dedicated to server 2 for such purpose see[0076]and FIG.2c);

also note that Ferrari teaches the step of querying in a routing table upon request of an outgoing from the local area network determining a next hop of the route for the packet (flow entry AND next-hop address to destination NAT IP address [0515]) comprising the steps of:

determining the policy route and/or the general route corresponding to the next hop; determining whether the ISP corresponding to the policy route is available; and if available, replacing the destination address route with the policy routing result; otherwise, utilizing the destination address route of the primary general route (based on policy and/or TOS bit a priority is assigned within the class. Classes are associated with a priority when compared to other classes see [0288]).

Regarding claim 15, note that Berg modified by Ferrari teaches the method for selecting egresses of a multi-ISP local area network (Berg: multiple ISP see FIG.2b and FIG.2c), wherein the step of determining whether the policy route is available (Ferrari: based on policy and/or

TOS bit a priority is assigned within the class. Classes are associated with a priority when compared to other classes see [0288]).

comprises the steps of:

querying in the routing table in accordance with the next hop of the policy route; and determining whether the next hop can hit the 32-bit mask route (Ferrari : class priorities are assigned to packets based on the TOS bit setting and/or policy see [0288]) corresponding to a directly-connected host; and if yes, determining the policy route is available, otherwise, determining the policy route is unavailable (Berg : forwards each received packet to a server (whose IP address is specified in the packet) see [0076]).

Regarding claim 16, note that Berg modified by Ferrari teaches The method for selecting egresses of a m multi-ISP local area network (Berg: multiple ISP see FIG.2b and FIG.2c) , wherein the step of determining a next hop of the route for the packet (Ferrari: flow entry and next-hop address to destination NAT IP address [0515]) comprises the step of:

determining whether the route corresponds to a plurality of next hops; and if yes, performing traffic sharing by the plurality of corresponding ISPs (Berg: The flow switch helps to balance client request loads see[0061] also see[0162]).

Regarding claim 17, note that Berg modified by Ferrari teaches The method for selecting egresses of a multi-ISP (Berg: multiple ISP see FIG.2b and FIG.2c) local area network, wherein the routing switch comprises a routing module and a NAT module completely separated from

each other (Ferrari : class priorities are assigned to packets based on the TOS bit setting and/or policy see [0288]), wherein

the routing module determines route egress for the subscriber traffic (Berg: the client opens a TCP type of connection endpoint and attempts connection through an IP network to a web server through the web server's advertised IP address on the standard web service TCP port SEE [0051]); and

the NAT module determines whether to perform NAT and which NAT address pool to be selected (Berg: the flow switch helps to balance client request loads see[0061]).

Regarding claim18, note that Berg discloses The method for selecting egresses of a multi-ISP (multiple ISP see FIG.2b and FIG.2c) local area network according to claim 4, further comprising the steps of:

classifying the routes of the local area network into a general route and a policy route, and setting a routing policy for the policy route, wherein the general route is a standby for the policy route (server 1 outputs response packets to clients through router A which is dedicated to server 1 for such purpose, and server 2 outputs response packets to clients through router C which is dedicated to server 2 for such purpose see[0076]and FIG.2c);;

also note that Ferrari teaches the step of querying in a routing table upon request of an outgoing packet from the local area network and determining a next hop of the route for the packet (flow entry AND next-hop address to destination NAT IP address [0515]) comprising the steps of:

determining the policy route and/or the general route corresponding to the next hop;

determining whether the ISP egress corresponding to the policy route is available; and if

available, replacing the destination address route with the policy routing result; otherwise, utilizing the destination address route of the primary general route(based on policy and/or TOS bit a priority is assigned within the class. Classes are associated with a priority when compared to other classes see [0288]).

Regarding claim 19, note that Berg modified by Ferrari teaches the method for selecting egresses of a multi-ISP (Berg: multiple ISP see FIG.2b and FIG.2c) local area network according to claim 18, wherein the step of determining whether the policy route is available (Ferrari: based on policy and/or TOS bit a priority is assigned within the class. Classes are associated with a priority when compared to other classes see [0288]).

Comprises the steps of:

querying in the routing table in accordance with the next hop of the policy route; and determining whether the next hop can hit the 32-bit mask route(Ferrari : class priorities are assigned to packets based on the TOS bit setting and/or policy see [0288]) corresponding to a directly-connected host; and if yes, determining the policy route is available, otherwise, determining the policy route is unavailable (Berg : forwards each received packet to a server (whose IP address is specified in the packet) see [0076]).

Regarding claim 20, note that Berg modified by Ferrari teaches the method for selecting egresses of a multi-ISP (Berg: multiple ISP see FIG.2b and FIG.2c) local area network according to claim 18, wherein the step of determining a next hop of the route (Ferrari: flow entry and next-hop address to destination NAT IP address [0515]) for the packet comprises the step of:

determining whether the route corresponds to a plurality of next hops; and if yes, performing traffic sharing by the plurality of corresponding ISPs(Berg: The flow switch helps to balance client request loads see[0061] also see[0162]).

Regarding claim 21, note that Berg modified by Ferrari teaches the method for selecting egresses of a multi-ISP (Berg: multiple ISP see FIG.2b and FIG.2c) local area network, wherein the routing switch comprises a routing module and a NAT module completely separated from each other (Ferrari : class priorities are assigned to packets based on the TOS bit setting and/or policy see [0288]), wherein' the routing module determines route egress for the subscriber traffic (Berg: the client opens a TCP type of connection endpoint and attempts connection through an IP network to a web server through the web server's advertised IP address on the standard web service TCP port SEE [0051]) ; and the NAT module determines whether to perform NAT and which NAT address pool to be selected (Berg: the flow switch helps to balance client request loads see[0061]).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(US 20040243712 A1), (Sakai et al) discloses, Internet communication system, internet communication method, session management server, radio communication device, communication relay server, and program.

(US 20020019875 A1), (Garrett et al) discloses Service selection in a shared access network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHALID ABDALLA whose telephone number is (571)270-7526. The examiner can normally be reached on MONDAY THROUGH EVERY OTHER FRIDAY 7 AM TO 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JINHEE LEE can be reached on 571-272-1977. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. A./
Examiner, Art Unit 4173

/Yemane Mesfin/
Examiner, Art Unit 2444